

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-006993

(43)Date of publication of application : 10.01.1995

(51)Int.Cl.

H01L 21/304

(21)Application number : 05-321478

(71)Applicant : GOLD STAR ELECTRON CO LTD

(22)Date of filing : 21.12.1993

(72)Inventor : LEE CHANG-JAE  
KIM HYEUNG-TAE

(30)Priority

Priority number : 92 9225455 Priority date : 24.12.1992 Priority country : KR

## (54) PROCESS FOR CLEANING SEMICONDUCTOR DEVICES

(57)Abstract:

**PURPOSE:** To maintain an appropriate impurity concentration by removing Cu ions and to allow a highly durable, high-performance cleaning to be effected by placing semiconductor devices in a cleaning vessel which contains an HF solution and supplying an O<sub>3</sub> gas into the vessel.

**CONSTITUTION:** Semiconductor devices 10 to be cleaned are placed in a cleaning vessel 11 containing an HF solution 12, and an O<sub>3</sub> gas is supplied into the vessel 11 by foaming the gas. The O<sub>3</sub> gas is supplied via a tube 13 that has on its distal end a plurality of golf ball-shaped nozzles 14, each nozzle having a plurality of holes 16. The O<sub>3</sub> gas supplied via the tube 13 is changed into O<sub>2</sub> and [O], and the [O] either is dissolved into the HF solution or oxidizes an impurity metal (Cu) present in a surface of a Si crystal, thereby forming chemically stable CuF<sub>2</sub> precipitates. By thereafter removing the CuF<sub>2</sub> precipitates using an ultraclean distilled water, the surfaces of the semiconductor devices can be cleaned.

